

Date: Sun, 27 Mar 94 04:30:17 PST  
From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>  
Errors-To: Ham-Ant-Errors@UCSD.Edu  
Reply-To: Ham-Ant@UCSD.Edu  
Precedence: Bulk  
Subject: Ham-Ant Digest V94 #81  
To: Ham-Ant

Ham-Ant Digest                      Sun, 27 Mar 94                      Volume 94 : Issue    81

Today's Topics:

                    440 Mhz J-Pole Dimensions ...?  
                    Attic Dipole (2 msgs)  
                    Best 2m and cb configurations??  
            HELP building a Quagi : Is THHN wire the same as TW wire?  
                    Multi-Band Inverted V  
                    Salt Lake City Dipoles  
                    Testing new 1691 MHz antenna ?  
                    Umbrella

Send Replies or notes for publication to: <Ham-Ant@UCSD.Edu>  
Send subscription requests to: <Ham-Ant-REQUEST@UCSD.Edu>  
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Ant Digest are available  
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-ant".

We trust that readers are intelligent enough to realize that all text  
herein consists of personal comments and does not represent the official  
policies or positions of any party. Your mileage may vary. So there.

-----

Date: Sat, 26 Mar 1994 10:54:49 -0500  
From: ihnp4.ucsd.edu!agate!howland.reston.ans.net!gatech!udel!NewsWatcher!  
user@network.ucsd.edu  
Subject: 440 Mhz J-Pole Dimensions ...?  
To: ham-ant@ucsd.edu

Hello,

I have seen a bunch of listing's on 2 meter J-poles, I am wondering if  
someone has the plans or dimensions for building a J-pole for 440 Mhz. I  
seen they plans for the 300 ohm J-pole for 2 meters is there plans for a  
440 Mhz 300 Ohm J-pole ....???? I just bought a new dual band hand held and  
would like to see what I can do with a decent 440 antenna.

Thanx 73 de Keith

--

\*\*\*\*\*

Keith J Leite KA1AQB  
AX25 - KA1AQB @ WA1PHY.#EMA.MA.USA.NA  
AMPR - ka1aqb@switch.sema.ampr.org  
Internet - kleite@sentry.ndhm.gtegsc.com

\*\*\*\*\*

-----

Date: 26 Mar 94 20:01:29 GMT  
From: ihnp4.ucsd.edu!swrinde!sgiblab!sgigate.sgi.com!olivea!isc-br!tau-ceti!  
jupiter!opus-ovh!bmork@network.ucsd.edu  
Subject: Attic Dipole  
To: ham-ant@ucsd.edu

> In article <Troyce-230394160123@idmb-secretary.tamu.edu>,  
> Troyce <Troyce@bio.tamu.edu> wrote:  
> >Living in a duplex, I can't put an outside antenna up, so I have been  
> >considering designs involving hiding a dipole in the attic. I have  
> about  
> >50 feet of length to work with. Right now I am considering a trap  
> dipole  
> >for 10-80 meters, 82' long. This would entail running 50 feet straight  
> >across the peak of the attic roof, then sloping down 16 feet on each  
> end.  
> >I know this is certainly not an optimum configuration, but is it still  
> a  
> >viable method? If the bend ends are a big problem, I do have the  
> >alternative of a 45 foot 10-40 meter dipole, but would like the option  
> of  
> >80 meter use (for when I upgrade to general from Tech plus).  
> >  
> >Troyce  
> >KC5CBI

Feed whatever length of wire (symmetrically) with a 300 ohm or 450 ohm  
ladder line. Use a tuner and all bands will be open to you. I've used  
this for 4 years in three different houses/yards.

-----

Date: Sat, 26 Mar 1994 22:11:10 GMT  
From: ihnp4.ucsd.edu!usc!cs.utexas.edu!convex!news.utdallas.edu!corpgate!bnrgate!  
bcars267!Peter.Dodd@network.ucsd.edu  
Subject: Attic Dipole

To: ham-ant@ucsd.edu

In article <Troyce-230394160123@idmb-secretary.tamu.edu>  
Troyce@bio.tamu.edu (Troyce) writes:

> Living in a duplex, I can't put an outside antenna up, so I have been  
> considering designs involving hiding a dipole in the attic. I have about  
> 50 feet of length to work with. Right now I am considering a trap dipole  
> for 10-80 meters, 82' long. This would entail running 50 feet straight  
> across the peak of the attic roof, then sloping down 16 feet on each end.  
> I know this is certainly not an optimum configuration, but is it still a  
> viable method? If the bend ends are a big problem, I do have the  
> alternative of a 45 foot 10-40 meter dipole, but would like the option of  
> 80 meter use (for when I upgrade to general from Tech plus).

>

> Troyce

> KC5CBI

>

-----  
As I contemplated this problem, someone mentioned that there was a  
design  
for a "slinky" dipole. I haven't found the original article, and if  
anyone  
has it please post. At any rate I tried it out, and made a dipole of  
enough  
turns to equal an 80 m dipole. It's stretched out to 38 feet long with  
a rope to support the slinky turns. With the tuner it tunes up on 40  
and 80  
m, though better on 40 m than 80 m, and I have had QSOs using it.  
It's not ideal, though, and I'm sure that it's RF soup in the attic!

73

Peter Dodd  
VE3IPD@VA3TCP.#EON.ON.CA  
dodd@bnr.ca  
Ottawa Canada

-----  
Date: Sat, 26 Mar 1994 05:18:30 GMT  
From: ihnp4.ucsd.edu!swrinde!sgiblab!cs.uoregon.edu!reuter.cse.ogi.edu!  
netnews.nwnet.net!bach.seattleu.edu!quick!ole!ssc!fylz!eskimo!wrt@network.ucsd.edu  
Subject: Best 2m and cb configurations??  
To: ham-ant@ucsd.edu

In article <2mvkeu\$1ha@hydra.unm.edu>, Keith W. Smith <keith@unm.edu>

wrote:

>Well I looked in rtfm (which of course stands for read the FAQ, man)  
>in pub/blahblah and found only a copy of the Guide\_to\_the\_Groups  
>which doesn't help me with my questions. I also have the ARRL  
>handbook and Antenna Compendiums (V. 1 and 3) and haven't found it  
>there either. I'm planning a guyed 40 ft PVC mast with 3 antennas.  
>All would be \*inside\* the PVC. They would be a long wire receiving  
>antenna, and 2m and cb antennas designed as full wave  
>center fed vertical dipoles made from bare 12 g. solid copper.  
>  
>The bottom tip of the cb antenna would be about 1 (where's the  
>lambda key?) up and the 2m would be "high" (wavelength wise).  
>So much for the history, here're the questions:  
>  
>1. How well does PVC withstand sunlight? I assume it will get  
> brittle, but does this happen in 2 months or 2 years?  
>  
>2. Are there any RF characteristics of PVC I should know about?  
>  
>3. I haven't seen anything about a simple full wave vertical dipole  
> anywhere. For 80m they might be a bit awkward =>:0 (especially  
> if you put that puppy 1 wavelength up!!) but for 27 and 144 mhz  
> it seems ok. Is it? Is a 1/2 wave or 5/8 wave better than  
> a full wave? Should I make the 2m a 2 wave (1 wave above and  
> below the feed point)?  
>  
>Basically if you see what I'm making (a big white post with two  
>sideways T's sticking out of it) I would appreciate any comments  
>I may not have covered in my questions.  
>TIA keith smith keith@unm.edu KC4CEA  
>ps IS there a FAQ that deals just with designing/building antennae?

Question #1: PVC withstands sunlight well IF you get the kind made for outdoors. I used outdoor PVC electrical conduit for a 40 meter 1/4 wave vertical with a #12 wire in it, and it worked fine till the infamous Inauguration Day storm here in Seattle. PVC needs to be WELL guyed in order to stay up. Mine was only 30 feet high, with two sets of guys. You'd think that would be enough, wouldn't you? Nope. It got to vibrating in the wind and finally just shattered. When I looked at the pieces, they were completely unaffected by sunlight as far as I could tell. It had been up about a year. Oh, yes - one little funny about a vertical PVC antenna: when the sun shines on it, the sunny side expands and the antenna takes a noticeable bend! Looks like it's ready to fall down, but when the sun goes down or behind a cloud, it straightens right up. Here in Seattle, it was mostly straight. :-)

Question #2: PVC, or any other non-conductor, will detune your antenna

inside it, due to the fact that you're placing a dielectric in the field of the antenna. It adds capacitance, and lowers the resonant frequency of the antenna. No harm, no foul, but make sure you have the antenna resonated before you put it up!

Question #3: Well, if you can get a full size 80 meter dipole up, you will really have something. If you're talking about doing that inside PVC, forget it. The PVC is way too bendy to ever get that tall. 40 feet is starting to push it, and 125 is beyond imagining.

Don't forget to bring the coaxes out at 90 degrees from the antenna for at least a few feet. If you just run them down parallel, they will couple to the antenna and cause some undesirable happenings.

73 es gl

Bill Turner, W7LZP                      and remember to eschew obfuscation...  
wrt@eskimo.com

-----  
Date: Sat, 26 Mar 1994 04:54:32 GMT  
From: ihnp4.ucsd.edu!swrinde!sgiblab!cs.uoregon.edu!reuter.cse.ogi.edu!  
netnews.nwnet.net!bach.seattleu.edu!quick!ole!ssc!fylz!eskimo!wrt@network.ucsd.edu  
Subject: HELP building a Quagi : Is THHN wire the same as TW wire?  
To: ham-ant@ucsd.edu

In article <Cn8L7H.2BJ@cbnewsj.cb.att.com>,  
douglas.quagliana <dquaglia@cbnewsj.cb.att.com> wrote:  
>Background info:  
>I'd like to build a 2-meter Quagi antenna. Mr. Overbeck specifies  
>TW-12 wire WITH THE INSULATION [his emphasis] on it, and notes that  
>if you use different wire or TW-12 wire without the insulation that you  
>will need to recalculate all the lengths. He doesn't say how to  
>recalculate them though.  
>  
>The local wire guy has this wire called THHN wire in a 12 gauge.  
>Is this the same? Similar enough? If it's different, then how can I  
>recalculate the size of the quads and the directors. None of Mr.  
>Overbeck's articles in QST (that I could find) contains any equations  
>for computing the lengths. The ARRL Antenna book doesn't have the  
>equations either - just the lengths.  
>  
>Any help or equations for Quagis is appreciated.  
>Doug KA2UPW  
>dquagliana@attmail.com

The reason there are no figures available on length of insulated wires

is there are too many different kinds of insulation, not to mention thicknesses. One thing you can count on, though, is that any insulation will lower the resonant frequency of the antenna to some extent. The higher the dielectric constant, the lower the frequency. Just get out the dikes and start trimming!

73 is gl

Bill Turner, W7LZP            and remember to always eschew obfuscation...  
wrt@eskimo.com

-----  
Date: Sat, 26 Mar 1994 18:26:04 GMT  
From: ihnp4.ucsd.edu!agate!boulder!csn!server!stortek.com!  
patrick\_tatro@network.ucsd.edu  
Subject: Multi-Band Inverted V  
To: ham-ant@ucsd.edu

I built a 3 band inverted V for 7, 14, and 28Mhz. When I tuned it on my roof the SWR's were in the 1.1 to 2.0 range on the bands. I then moved it to a higher location in a tree and all but the 7Mhz SWR's went to heck (ie 4.0+)

I did add additional RG58 feed line about 20ft but I dont think that has anything to do with it. I did maintain the angle as best I could. My roof is wooden so if there would have been any interaction I think it would have shown up on it. My calculated lengths were 5% shorter than a dipole.

Any idea's? Thanks in advance.    Patrick Tatro NOWCG

73's

-----  
Date: Sat, 26 Mar 1994 18:49:27 GMT  
From: netcomsv!netcom.com!henrys@decwrl.dec.com  
Subject: Salt Lake City Dipoles  
To: ham-ant@ucsd.edu

Donald Studney (studney@unixg.ubc.ca) wrote:  
: <nada>

Donald, keep trying, you will get it.

You probably need to make sure that your editor has written the file before you end it.

Smitty

--

```
-----
| Henry B. Smith - NA5K                               henrys@netcom.com |
| Dallas, Texas                                         |
|                                                       |
| "I'm not sure I understand everything that I know"   |
|                                                       |
-----
```

-----  
Date: 27 Mar 94 03:36:23 GMT  
From: sdd.hp.com!saimiri.primate.wisc.edu!news.doit.wisc.edu!news@hplabs.hp.com  
Subject: Testing new 1691 MHz antenna ?  
To: ham-ant@ucsd.edu

Hi!

I just finished building a quadrifilar helix antenna for 1691 MHz. I'm pretty sure it should work (I've built these antennas for 2 meters and 440 MHz with no problem). Nevertheless I would love to test it out before I mount it and connect it to the pre-amp. It will only be used for receiving WEFAX off GOES.

Thanks for any ideas or help!

73,  
Kevin N9JKP

-----  
Date: Sat, 26 Mar 1994 04:45:36 GMT  
From: ihnp4.ucsd.edu!swrinde!cs.utexas.edu!uwm.edu!reuter.cse.ogi.edu!  
netnews.nwnet.net!bach.seattleu.edu!quick!ole!ssc!fylz!eskimo!wrt@network.ucsd.edu  
Subject: Umbrella  
To: ham-ant@ucsd.edu

In article <2mu9pd\$3kk@mail.fwi.uva.nl>,  
Dirk-Jan Agterkamp (I89) <agterkam@fwi.uva.nl> wrote:  
>I'm planning to build a vertical for 160m and I'm looking  
>for the perfect compromise. Should I use:  
>  
>1) Umbrella toploading, since the mast is of PVC piping (10m) it  
> has to be guyed so this is easy, however:  
> - what are the optimal lengths of the topload wires ?  
> - how many wires should I use (perhaps 4) ?  
>  
>2) Coil loading, because the mast is of PVC the coil can be placed

> anywhere, however:  
> - what is the optimal position of the load coil (mid ?)  
> - what are optimal length/dimension ratios of the coil ?  
>  
>3) Both toploading and coil ?  
>  
>Any suggestions are welcome.  
>  
>Dirk.

The purpose of top loading is to increase the antenna's capacitance to ground and thereby reduce the amount of inductance needed for the loading coil. The loading coil is the chief source of loss, next to ground losses of course. Any decrease in the amount of inductance required improves efficiency. To answer your first question, there's no optimal length, just the more the better. If you do make them REALLY long, then they start acting like an inverted-L, and that's even better yet.

Optimal position of loading coil: There isn't any, just tradeoffs. Personally, I like base loading on my 160 meter vertical because it is easier mechanically, the coil is smaller, you can get to it to make adjustments easier, and the antenna is stronger when the wind blows.

So why have a center loaded antenna at all? Well, on a car, it makes some sense. If the loading coil is at the base of a mobile antenna, then part of the magnetic field is going to pass through the car body, and that's going to be lossy due to induced eddy currents. Putting the coil up high improves it's Q and makes sense. On a vertical in the backyard, there's no such problem, and base loading works fine.

It helps to understand exactly what the loading coil is doing in the first place. The various texts talk about "tuning out reactance", which is true, sort of. What's really happening is that the loading coil is acting as an energy storage device (yes, coils store energy just like capacitors do). What it's doing with a short antenna is storing the reflected, out-of-phase current from the antenna and returning it back to the antenna with just the right amount of phase shift to maximize the net current flow. You will notice that the base of the coil has only a few volts on it, while the top has several thousand volts at normal amateur power levels. All that voltage is what makes the current flow where it really doesn't want to, in a sense.

Hope to work you on 160!

Incidentally, "perfect compromise" is an oxymoron, isn't it? :-)



73 es gl

Bill Turner, W7LZP

and remember to always eschew obfuscation...

wrt@eskimo.com

-----  
Date: Sat, 26 Mar 1994 18:43:25 GMT

From: ihnp4.ucsd.edu!library.ucla.edu!csulb.edu!csus.edu!netcom.com!

wb6w@network.ucsd.edu

To: ham-ant@ucsd.edu

References <2m4nj6\$hbd@ornews.intel.com>, <CMq2zq.91M@hpcvsnz.cv.hp.com>,  
<1994Mar24.000946.27955@unet.net.com>

Subject : Re: Thick Ethernet as Transmission Line?

Thanks for the word on color-coded coax - always new I wasn't a no-code -

...aside from that, how are these "special" cables different from good  
ol' RG-8 when you look inside the sheild? Same polyethylene or teflon  
inner dialectric? ...or has someone found something cheaper than  
polyethylene? - Glenn

-----  
End of Ham-Ant Digest V94 #81

\*\*\*\*\*